

## **Community-Based IMCI in Nepal: Building on Sixteen Years of Partnerships to Increase Access, Quality, and Scale of Childhood Pneumonia Treatment through Community Health Workers**

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Under-five mortality in Nepal remains high, at approximately 100 deaths per 1,000 live births, and as in other high mortality settings, pneumonia is a leading cause of childhood death. However, Nepal is an exceptional example of donor/MOH/NGO partnership on a large scale to reduce childhood deaths through case management at the community-level. Nepal's CB-IMCI initiative has grown out of experience with community-based treatment of pneumonia over the last sixteen years. The combination of the IMCI approach with the successful Nepal experience of working with Female Community Health Volunteers to treat pneumonia, dehydration, and provide other services, is unique.

**Background:** Starting in 1984 with a small study in the Kathmandu Valley,<sup>1</sup> controlled intervention trials and pilot projects in three districts of Nepal demonstrated that case management of pneumonia through Community Health Workers (CHWs) was feasible, and that this approach could substantially reduce under-five mortality, consistent with findings from several other studies reported by WHO and others.<sup>2,3</sup> During the Jumla ARI Intervention Trial in Nepal's northwestern mountains, CHWs detected and treated 850 cases of pneumonia per 1,000 children per year in a very high mortality setting.<sup>4</sup> The controlled study in Jumla documented a 28% reduction in overall child mortality in the absence of other primary health care interventions. In a lower mortality setting in Dang District in the plains of Nepal, CHWs treated 450 cases of pneumonia per 1,000 children per year. Based on this experience, the REACH (Resources for Child Health) Project estimated a nation-wide incidence of childhood pneumonia of between 300 and 500 cases per 1,000 children per year.

In 1993, even using the lowest estimate of pneumonia incidence, it was calculated that overall only about 15% of expected pneumonia cases were being brought by caretakers to the government health facilities for assessment and care. Therefore relying on caretakers to bring sick children to fixed facilities would not be adequate to save lives. Treatment needed to be taken closer to the children's homes, as had been done in the three pilot projects. However, these three projects were implemented through NGOs, functioned independently of the MOH system, employed literate community health workers and were able to provide supervisory and other external supports. The challenge was to develop, implement, and sustain an effective intervention through the MOH system.

**Establishment of the ARI Strengthening Program:** In 1993, the MOH, USAID, JSI, UNICEF, and WHO formed a working group to develop an approach, then referred to as the ARI Strengthening Program, which would bring much needed pneumonia diagnosis and treatment through the MOH system closer to children. The establishment of a National ARI Policy in 1994 assisted the development of an implementation strategy. Preparation and production of training and IEC materials were completed in early 1995.

**Primary Program Objective:** The overall objective of the program was to reduce mortality from pneumonia in children under 5 years of age through case detection and timely and appropriate antibiotic treatment.

**Secondary Objectives:**

- To ensure that health workers conducted standard case management of all ARI cases, which present to health facilities.
- To extend appropriate pneumonia case detection and treatment beyond the health facility and into the community through the MOH peripheral health workers: Village Health Workers (VHWs), Maternal and Child Health Workers (MCHWs), and Female Community Health Volunteers (FCHVs).
- To reduce the inappropriate use of antibiotics and cough and cold remedies for the treatment of ARI in children.
- To increase the knowledge of mothers and other child caretakers about how to recognize the signs of pneumonia, when and where to seek help, and to provide supportive home care.

**Strategy:** The primary strategy was to extend pneumonia case detection beyond the fixed facilities through VHWs, MCHWs, and FCHVs, referred to collectively as Community Health Workers (CHWs). The CHWs were trained to follow the WHO guidelines for standard case management at the community-level,<sup>5</sup> in which the diagnosis of pneumonia is based on clinical signs, particularly specific respiratory rate cutoffs by age, identification of danger signs, and standard antimicrobial treatment of simple pneumonia in children 2 months to 59 months of age. Cases of severe pneumonia or very severe disease were referred to the nearest health facility with a trained worker.

**Initial Intervention Models:** Since it was not clear whether or not these CHWs would be able to successfully conduct diagnosis and treatment, and whether or not the supervision would be adequate to support them, it was decided to initiate two different intervention models.

- **Treatment Model:** In this model, the CHWs diagnosed pneumonia using respiratory rates determined by using sounding timers, and if the child had “pneumonia only”, they would treat with the first line antibiotic, cotrimoxazole in pediatric tablet formulation. If chest indrawing or other danger signs were

present, they would refer these more seriously ill children to the nearest facility with a trained health worker.

- **Referral Model:** In this model, the CHWs would diagnose pneumonia using the sounding timer, check for danger signs, and refer all cases of pneumonia, severe pneumonia, or very severe disease, to the nearest trained health worker.

In both models, the CHWs were advised to re-examine the child on the third day after treatment or referral and determine if the child was improving or needing further assessment and care. In addition, all the CHWs would give caretakers advice about home therapy, danger signs, and when to seek further help. The antibiotics were provided free of cost at both the community and health facility levels. All the health workers, both health facility and community-based, received their initial training through the ARI Strengthening Program in 1995, and were monitored closely by JSI and MOH staff for the next one to two years.

**Monitoring:** Monitoring activities were conducted at facility and community-levels. FCHVs were visited at their homes, their knowledge and skills assessed, and their records reviewed. On-the-spot correction of any errors was made and positive feedback given. Over 80% of FCHVs retained excellent knowledge of criteria for diagnosis of pneumonia, recalled correctly the doses of cotrimoxazole required for the two different age groups, and counted respiratory rates correctly. Resupply of cotrimoxazole was done at the time of monitoring, either through the regular VHW visits or JSI/MOH visits.

Innovative recording forms for use by illiterate and semi-literate FCHVs were prepared, and record review of cases treated was utilized as an objective method of collecting indicators of program quality. Correct antibiotic dose by age group was monitored, along with the percentage of children receiving third day follow-up visits, and the percentage of cases correctly classified according to the clinical findings. Actual case management was observed where possible.

**Assessment:** An external assessment<sup>6</sup> was conducted in 1997 with technical assistance from WHO/SEARO and WHO/Geneva, and the findings were very encouraging. Respiratory rate was assessed in 95% of cases with agreement with surveyors in 81% of cases. Chest indrawing was assessed in 59% of cases, with agreement with surveyor's assessment in 93% of cases. For all cases of ARI assessed, the classification was correct in 81% of cases and total case management was correct in 80% of cases. Only 2.6% of cases who should not receive antibiotics were given them by the Community Health Workers. In addition, community-based treatment doubled the percentage of expected pneumonia cases which were identified and appropriately treated.

Cautious expansion of the "treatment" model was recommended, as CHWs, particularly FCHVs, had proven capable of correct pneumonia case management.

**Expansion:** The original two "referral" districts were converted to "treatment" districts in 1997/98, and two additional districts were added. In 1998/99, five more districts were

added, in collaboration with four international NGOs working in Nepal (ADRA, CARE, PLAN, and Save the Children/US) to maximize monitoring and support of the Community Health Workers, particularly the FCHVs. At the same time diarrhea, nutrition/Vitamin A, and immunization were included in the training package, and the Program was renamed the Community-Based ARI/CDD (CBAC) Program. From July 1999, the experience of these previous programs was combined with the Integrated Management of Childhood Illness (IMCI) initiative under the name Community-Based IMCI (CB-IMCI).

The original 11-day IMCI training course for Health Workers at Health Post and Sub-Health Post levels has been revised into a 9 plus 2-day training course. The two additional days cover program management training, which was lacking in the original IMCI approach. The 5-day integrated training package for VHWs and MCHWs has been adapted and translated into Nepali. Two days have been added to reinforce essential recording and reporting skills and guidance on how to function as a supervisor of FCHVs. For the FCHVs, the CBAC course materials are still being used. FCHVs have an initial 5 day training (3 and ½-days of training, ½-day orientation for local leaders, and 1-day mothers' group orientation) followed by a 2-day training after three to four months. Community leaders and decision-makers are included in orientation meetings to encourage them to further support and strengthen child health activities.

**Achievements:** To date, through all the Community-Based Child Health Programs, a total of 1,367 health facility staff and 8,646 community health workers, including 7,491 FCHVs, have been trained in the standard case management of pneumonia. Over 125,000 village mothers have been oriented by their FCHVs to the signs of pneumonia, appropriate home care, and when and where to seek help. Thousands of traditional healers, and 301 district-level and 7,305 village-level leaders have been oriented to the community-based child health program and their role in supporting FCHVs and saving children's lives. IMCI materials have been adapted and translated for Nepal. Training, IEC, and reporting materials appropriate for semi-literate village women have been developed and monitoring systems established.

During the current fiscal year, the CB-IMCI initiative has been fully implemented in 2 districts and initiated in a third. When all activities in this remaining district have been completed, community-based treatment of pneumonia will be available in 14 districts, with a population representing about 28% of all under 5 children in Nepal. Large numbers of health facility staff had to be trained and monitoring is now ongoing. A summary of those reached this year through trainings and orientations for CB-IMCI follows: District level planners – 62; Health Post and Sub Health Post staff – 278; Village Health Workers and Maternal Child Health Workers – 141; Female Community Health Volunteers- 1,534; Traditional Healers – 340; Village Development Committee/Local Leaders – 1,029; Mothers – 22,697 for a total of 36,081 persons reached.

**Results:** Not only have community health workers, mainly FCHVs, proven themselves capable of correctly diagnosing and treating pneumonia, but their involvement in the pneumonia control program has greatly increased access to treatment for children. By

July 1999, the percentage of expected pneumonia cases receiving treatment in the initial program districts had reached 50%, with over half of the cases treated by the FCHVs. The national average in non-program districts remained at only 18% of expected pneumonia cases receiving treatment from MOH fixed facilities. This nearly three-fold increase in children reached, combined with information on the quality of case management, strongly suggests that this Program is having a substantial impact on child mortality in Nepal.

Partnerships between the MOH and international NGOs have increased program support and monitoring, and allowed testing of other innovative approaches such as cost recovery, with FCHVs now selling cotrimoxazole in some districts.

FCHVs are proud of the contributions that they are making towards improving child survival in their villages, and recognition of their efforts by other community members is increasing. Local leaders are making financial commitments to support FCHVs and child health programs in their villages.

**Conclusions:** Experience gained while implementing the community-based pneumonia treatment program in Nepal has contributed insights into the need and potential for expanding good quality child health services beyond health facilities. From July 1999, the community-based child health program, led by pneumonia treatment through FCHVs, has merged with the IMCI initiative, defining a clear direction for future child health programs in Nepal.

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<sup>1</sup> Pandey MR, Sharma PR, Gubhaju BB, Shakya GM, Neupanne RP, Gautam A, Shrestha IB. Impact of a pilot acute respiratory infection (ARI) control programme in a rural community of the hill region of Nepal. *Annals of Tropical Paediatrics* 1989; 9: 212-220.

<sup>2</sup> Case-Management of Acute Respiratory Infections in Children: Report of a Meeting. WHO/ARI/88.2

<sup>3</sup> Sazawal S, Black RE. Meta-Analysis of Intervention Trials on Case-Management of Pneumonia in Community Settings. *Lancet* 1992; 340: 528-33.

<sup>4</sup> Pandey MR, Daulaire NMP, Starbuck ES, Houston RM, McPherson K. Reduction in total under-five mortality in western Nepal through community-based antimicrobial treatment of pneumonia. *Lancet* 1991; 338; 993-97.

<sup>5</sup> World Health Organization, Programme for the Control of Acute Respiratory Infections, 1992. Treating Children with a Cough or Difficult Breathing: A Course for Community Health Workers.

<sup>6</sup> CDD/ARI Section, Child Health Division, MOH. Assessment of the ARI Strengthening Program – January/February 1997.